FY 1999 Technology Deployment in Environmental Management

Engineering Tomorrow's Solutions Today

Site Technology Coordination Group / Technology Deployment Center
U.S. Department of Energy, Idaho Operations Office

Polymer Microencapsulation

Problem: *Constituents in fly and bottom ash from INEEL's WERF incinerator require stabilization as mixed waste.*

Baseline Technology: *On-site stabilization of ash using hydraulic cement-based grouts.*

Innovative Technology: *Commercial stabilization and disposal of WERF ash by microencapsulation using a thermosetting polymer (low-density polyethylene) and a thermal-kinetic mixer.*

Comparison: *Stabilization using hydraulic cements requires treatability studies be performed, as waste constituents can interfere with chemical reactions involved in solidification. In contrast, polymer microencapsulation is compatible with wide variations in waste composition, and can stabilize more waste per unit volume than hydraulic cement-based grouts.*

Benefits: *Waste stabilization using polymer microencapsulation yields a robust waste form which regularly meets concentration-based treatment standards. Treatment of WERF ash was procured using an existing INEEL Waste Generator Services subcontract with Envirocare Utah for treatment and disposal of mixed wastes.*

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